Erich (A. F.)

A CONTRIBUTION TO THE RELATIVE VALUE

—OF THE—

DIFFERENT OPERATIONS

—FOR—

DELIVERY IN NARROW PELVES;

—WITH—

THE HISTORY OF EIGHTEEN CASES.

—BY—

AUG. F. ERICH, M. D.,

PROFESSOR OF DISEASES OF WOMEN, COLLEGE OF PHYSICIANS AND SURGEONS, BALTIMORE

SURGEON IN CHARGE OF THE MARYLAND WOMAN'S HOSPITAL, ETC., ETC.

BALTIMORE, MD.

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A CONTRIBUTION TO THE RELATIVE VALUE OF THE DIFFERENT OPERATIONS FOR DELIVERY IN NARROW PELVES; WITH THE HISTORY OF EIGHTEEN CASES.

BY AUG. F. ERICH, M. D.,

Professor of Diseases of Women, College of Physicians and Surgeons, Baltimore; Surgeon in charge of the Maryland Woman's Hospital, etc., etc.

Obstetricians are still divided in opinion as to the indications for the different operations devised to facilitate delivery of the child in cases of narrow pelvis. Authorities of the highest standing in the profession are found upon both sides of the questions that are at present under such active discussion, and arguments of the most conflicting character are advanced by men of equally large experience. Under circumstances such as these, the truth cannot be reached by any method of *a priori* reasoning; nothing short of a careful sifting of our bedside experiences will enable us to arrive at definite conclusions.

The following eighteen cases bearing upon the points in dispute are offered as a basis for the arguments I propose to advance in favor of the views that appear to me to be true. Only one of these cases, (Case XII) occurred in my own practice; the other seventeen had been attended by midwives, or other practitioners and I was not called until a late stage of the labor; usually some time after the attendants had despaired of delivering the child.

The cases extend over a period of nine years, from 1871 to 1879, and are here given in their regular sequence:

CASE I. Mrs. J. McG, native of Ireland, married, aged 42, multipara; was taken in labor on July 15th, 1871, Drs. C. Edward Miller and R. W. Mansfield in attendance. Labor had progressed slowly until the head was firmly impacted in the cavity of the pelvis. Size of head out of proportion to the dimensions of the pelvic canal. Ergot had been used. Forceps were given a fair trial by all the attendants, but without success; version was not attempted. After eighteen hours, perforation was performed under chloroform The entire roof of the skull had to be removed before delivery could be accomplished. Perfect recovery of mother.

The subsequent history of this patient could not be traced.

CASE 2. Mrs. L. W., native of Ireland, aged 38, 1 para, married. In labor August 4th, 1871, attended by a midwife and Drs. Hamilton, J. R. Andre and C. M. Morfit. Head impacted in the cavity of the pelvis. Ergot had been used. Forceps tried fairly by all the attendants and by writer, but without success. Sixty-one hours after beginning of labor, the head was perforated with the trephine, and a large portion of the bones of the cranium removed before the fœtus could be delivered.

A vesico vaginal fistula resulted from sloughing of a portion of the anterior vaginal wall.

The patient has had one abortion, but has not been confined at full term since the operation.

CASE 3. Mrs. I. A., mulatto, aged 30, married, 2 para. Was taken in labor May 4th, 1873, Dr. R. W. Mansfield in attendance. Previous labor normal. After being in labor twelve hours, the head was impacted in the cavity of the pelvis on account of disproprotion between size of head and canal. Ergot had been used without result. Forceps fairly tried by Dr. Mansfield and the writer. Version was not attempted. Under chloroform, the head was perforated with the trephine. The entire roof of the skull had to be removed in order to deliver.

A transverse rupture of the posterior wall of the vagina was produced during the efforts at delivery with the forceps. Perfect recovery without fistula resulted. The patient has since been delivered of a living child, after a normal labor.

CASE 4. Mrs. C. H., white, American, aged 20, married, 1 para, in labor April 28, 1874, attended by Dr. James F. McShane. Ergot was not used during the labor. Head impacted in the cavity of the pelvis on account of disproportion of size of head to the pelvic cavity. Forceps applied and delivery attempted by Dr. McShane and the writer but without success. The case was unsuitable for version, the head being too low down in the cavity and the waters having long since drained off. Delivery of the head entire being manifestly impossible and the woman becoming rapidly exhausted, perforation with the trephine was resorted to and the child soon delivered. No anæsthetic was used. Perfect recovery of the mother without fistula or other injury. This patient has since borne three living children, the last one being delivered by forceps.

CASE 5. Mrs. G. F., white, American, aged 24, married, 1 para, in labor May 17, 1874, attended by Dr. R. W. Mansfield. Duration of labor, twelve hours. Disproportion of head to pelvis, head impacted in cavity. Ergot used. After a fair trial of the forceps by both the attendant and the writer, craniotomy was done under chloroform. Evacuation of the brain reduced the size of the head sufficiently to permit delivery of the child. Version was not attempted.

The mother recovered perfectly and has since been delivered of a living child.

CASE 6. Mrs C. B., German, married, aged 28, 4 para, in labor October 8, 1874, attended by a midwife. Ergot had been used by the midwife before writer was sent for. Antero-posterior contraction of the pelvis. Head arrested at the superior strait. High forceps operation tried without result. The forceps were difficult to apply, but were fairly tried without slipping. The patient's first labor was normal, her second difficult; in the third she was delivered by version.

In the present instance version was not attempted on account of dryness of the passages and exhaustion of the patient. The head was perforated with the trephine, and delivery rapidly completed. No anæsthetic was used. The mother soon recovered completely from the effects of the operation.

In a subsequent labor a child was

delivered by the high forceps operation by another operator, from the effects of which she died.

CASE 7. Mrs. H., German, married, aged 40, multipara, previous labors generally difficult. In labor October 25, 1874, attended by a midwife. Ergot had been used by the midwife during the labor. Disproportion in size between the head and cavity of the pelvis. Head impacted in the pelvic cavity. Forceps fairly tried but without success. Version was not attempted, the case being unsuitable for this operation. Labor had lasted twenty-four hours, the vagina was hot and dry, and the strength of patient becoming rapidly exhausted. Perforation with the trephine was re sorted to without anæsthesia and delivery easily accomplished. Recovery rapid and complete, without any intercurrent accidents.

This patient has had no labor since.

CASE 8. Mrs. E S., German, aged 21, married, 1 para, in labor with twins, March 20th, 1875, attended by a midwife. Ergot used by the midwife during the labor. Uniformly contracted pelvis; head of presenting child impacted in the cavity. Forceps fairly tried without success. Version would have been difficult, or impossible without great danger to the mother, and hence was not attempted. The head of the first child was perforated with the trephine and the fœtus deliv ered. The second child was turned and delivered dead. The children were both males. No anæsthetic was used. Rapid recovery of mother without fistula or other bad accidents. This patient has been delivered of two living children, one male and one female, in normal labors since.

CASE 9. Mrs. R. C., native of Ireland, aged 37, married. Was taken in her eleventh labor June 24, 1875, attended by Drs. M. J. Gately and John A. Conner. Her first labor was normal, child female; her second premature, male. In her third labor she was delivered of a boy, living; in her fourth of a girl, living, by version; in her fifth of a girl, normal; sixth, seventh, eighth and ninth, boys, and tenth, a girl, all living and all normal labors. In her present confinement she was delivered of a dead female child easily, and another child discovered to be following, the head presenting. Twelve hours after the delivery of the first child, the head being impacted in the cavity of the pelvis, and the strength of the patient becoming rapidly exhausted, the head was perforated and the fœtus rapidly extracted. The forceps had been fairly tried, without success, by all the attendants. Version was not attempted.

No anæsthetic was used. The patient recovered without fistula or other bad results, and eighteen months after the operation had another female child in normal labor.

CASE 10. Mrs. M. D., German, married, aged 45. In labor for the eleventh time, July 24, 1875, attended by a midwife. Her first labor was premature, a female child at seven and a half months being born, which lived three weeks. Her second to sixth children were girls; seventh, a boy; eighth, a girl, ninth and tenth, boy and girl (twins); all normal labors. Her eleventh child was a girl delivered alive by version, but died a few minutes after birth.

In her present labor ergot had been administered by the midwife. Disproportion between size of head and cavity of the pelvis, head impacted in the cavity. The labor having lasted twenty hours, with no prospect of terminating normally, and the forceps having been fairly tried without success, craniotomy was thought to offer the best chance for the mother's life, the case not being considered a suitable one for version. The head was perforated with the trephine, and a large male child delivered without much further difficulty. No anæsthetic was used.

The patient rapidly recovered with-

out fistula or other accidents. She has had no labor since.

Case 11. Mrs. S. S., German, aged 20, 1 para, married, in labor Nov 13, 1875, attended by a midwife. Ergot used by the attendant before the writer was called. Considerable antero-posterior contraction of the pelvis. The head was arrested at the superior strait. The forceps were applied, and traction made until all hopes of delivery in this manner had been rendered futile. Version was not attempted, on account of the extent of the contraction and the dryness of the passages, the membranes having been ruptured six hours previously. The head was perforated by the trephine without anæsthesia. A large portion of the skull was removed before delivery could be accomplished No fistula or other untoward results followed the operation and the patient made a rapid recovery.

Two years later this woman again became pregnant and was again delivered by craniotomy. (See below, case 14.)

Case 12. Mrs. C. S., American, married, aged 23, 1 para, in labor August 15, 1876, attended by the writer. Ergot was not used previous to delivery. Head was very large and became impacted in the pelvic cavity. After a fair trial with the forceps without advancing the head, perforation by the trephine was resorted to, under chloroform, sixteen hours after the beginning of the labor. The patient rapidly recovered without fistula or other untoward results. The case was a more than usually interesting one from the fact that labor was delayed, to all appearances, two months beyond the full term of pregnancy.

The patient was of small and delicate build. Being her first pregnancy every step of it was carefully watched by her family. When she had been pregnant nine months, according to the reckoning of the family, labor pains set in and the writer was sent for. Upon arrival at the house, the os was found undilated, and the pains gradually diminishing in intensity. Patience was counseled, and it was decided to leave the case to nature. Fully two months elapsed before her confinement finally took place. The patient herself, her female relatives and her husband were positive in their assertions that she had been pregnant for eleven months. The size and appearance of the child were certainly calculated to support this view. It was as large as an infant two months old. The hair was unusually thick and long, and the nails were so long as to project considerably beyond the ends of the fingers. I was very reluctant at first to admit an eleven months pregnancy, but these evidences and the fact that I have since delivered the patient of a full-sized living child without version or the aid of instruments strengthen the presumption that the former difficult labor was not due to any defect in the pelvic passages of the mother, but to the great size and unyielding hardness of the child's head. The possibility of eleven month's pregnancies is now generally admitted, and I believe the case just related to have been one.

As stated above, the patient has since had a normal labor at full term, in which she was delivered of a living child.

Case 13. Mrs. J. R., German, aged 29, married, 4 para, in labor October 29, 1876, attended by Dr. John A. Conner. In her first labor, the child was delivered by embryotomy, the operation being done by another practitioner. A vesico-vaginal fistula resulted from the operation. She was confined a second time at eight months, child still-born. In her third labor, a dead child was delivered with the forceps, the skull being crushed in. In the present labor the head was arrested at the superior strait, there being a decided antero posterior contraction of the pelvis. Delivery by the high forceps operation was at-

tempted by Dr. Conner and the writer, but without success. Version was not attempted. Ergot had been used to increase uterine contractions, but with no apparent good result. After labor had lasted thirty-six hours, and there being no prospect of natural delivery, the head was perforated with the trephine. The whole arch of the skull had to be removed before the fœtus could be delivered. A rapid recovery took place.

This patient was delivered fourteen months later of a six months child, still-born. The labor in this instance was not difficult.

Case 14. Mrs. S. S., (see above case 11), was again taken in labor, October 21, 1877, and attended by Dr. Pierre G. Dausch. As in her previous labor, the head was arrested at the superior strait. The forceps were thoroughly tried by both the attendant and the writer, but without success Perforation was finally resorted to and a large portion of the skull removed before the child could be delivered. No anæsthetic was used. Ergot was not used before the operation. The patient made a rapid and perfect recovery.

After her first labor this patient was advised to have the induction of labor performed at the seventh month as furnishing the best chance for a living child with least risk to the mother. The advice was however declined, with the result given. In 1879 she again became pregnant. In this labor she was under the care of another practitioner who first attempted to deliver with the forceps, and then by version, but without success. He was finally compelled to resort to craniotomy. The child, according to the statement of eye-witnesses, was removed piece meal. The mother died on the day of the operation.

Case 15. Miss A., colored, aged 20, unmarried, 1 para, in labor July 4th, 1878, attended by Drs. B. F. Leonard and Albert Lyman. Ergot not used previous to delivery. Deformed pelvis; head arrested at the superior strait. High forceps operation fairly tried, by all the attendants. Version was not attempted. After labor had lasted about twelve hours without apparent progress of the head, craniotomy was resorted to under chloroform. After perforation and breaking up of the brain, the head could be compressed sufficiently to permit delivery without removal of any of the bones of the skull. The patient made a rapid recovery without fistula or other accidents. She has since married, but has not borne any children.

Case 16. Mrs. J. S., German, married, aged 22 years, 1 para, in labor April 8th, 1879, attended by a midwife. Ergot administered by midwife during the labor. Head arrested at the superior strait, contraction in the conjugate diameter of the pelvis. High forceps operation fairly tried by the writer without success. After labor had lasted about ten hours, the head was perforated with the trephine and delivery accomplished without removal of the cranial bones. No anæsthetic was used. Version was not attempted. After delivery she had an attack of parametritis from which she perfectly recovered. I have since delivered her of a living child by the high forceps operation, preceded by the use of Barnes' dilators and Braun's Kolpeurynter. From this operation she has also entirely recovered, and is now in excellent health.

Case 17. Mrs. C. H., German, married, aged 22 years, 1 para, in labor June 25, 1879, attended by a midwife. Ergot administered by the midwife during the labor. Slight antero-posterior contraction of the pelvis, head arrested at the superior strait. After labor had continued over three days the writer was sent for to operate. The high forceps operation was first fairly tried, but without success. On account of the lingering labor, and the dryness of the pelvic passages of the mother, version was not attempted. Eighty hours after the commencement

of the labor, the head was perforated with the trephine, and a portion of the cranium removed, before delivery could be accomplished. The child was a male The operation was done under chloroform.

The patient made a perfect recovery, without any fistulæ or other accidents which might have been anticipated from the delay in rendering her proper assistance. She has since been deliverhd of a female child in normal labor at full term.

Case 18 Mrs. J. W., German, aged 27, married, 1 para, in labor November 2, 1879, attended by a midwife. Ergot had been administered by the midwife during the labor. Disproportion of size of head to cavity of the pelvis. Head impacted in the cavity. Forceps fairly tried without success. Labor having lasted nearly twenty four hours and the waters long since drained off, version was not attempted. Perforation with the trephine and consequent compression of the head resulted in rapid delivery. No anæsthetic was used.

Her first labor was a difficult one, and was terminated by the delivery of a still-born child with the forceps.

The patient rapidly recovered without fistulæ or other bad results.

The practitioner called to a case of dystocia due to narrow pelvis, is required to make a prompt choice between the following means of delivery, viz: 1, the long forceps; 2, podalic version; 3, craniotomy; 4, laparo-elytrotomy; 5, gastro-hysterotomy, or its modification by Porro, gastro-hysterectomy. The discussion of the first two, the long forceps and podalic version, has been conducted with more bitterness than that of all the others combined. Next to the late Sir James Y. Simpson, who lent the great weight of his authority in favor of this operation, one of the strongest advocates of podalic version in preference to the forceps, is Goodell, of Philadelphia. In a paper published a few years ago,* he relates ten cases delivered in this manner, only one of which (case IX) can be considered as supporting his views, since in this case alone had the forceps been tried before version was attempted and a living child delivered by its means. Even this case loses some of its value by the confession of the author that he is "a convert to," and "a warm partizan of podalic version." Is it not possible that had he not been a partizan of delivery by version he might have continued his efforts with the forceps a little longer and perhaps finally succeeded with it?

Dr. Alexander Milne, of Edinburg, another advocate of podalic version, says of the high forceps operation:† "The chief merit claimed for the high forceps operation is, that by it we may occassionally extract a child in cases of narrowed brim, where no other prospect is offered but the 'sad and horrible' one of craniotomy. Now, granting that this happy result is obtained in some instances, and conceding further, for argument's sake, that turning in these same cases could not have been accomplished, the question remains. Is the result worthy the price, or is the benefit obtained not outweighed by the attendant risks and dangers? Take the mother first, as the more important life, * * * What dangers threaten her, to what hazards is she exposed? In the first place, from the long delay * * * she may become exhausted and suffer from a train of well-known painful symptoms, or the protracted pressure may lead to inflammation, suppuration and sloughing; * * * or even rupture of the uterus, with its usually fatal termination may be induced."

This is indeed the language of "a partizan." He pictures the dangers

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*Clinical Memoir on Turning in Pelves narrowed in the Conjugate Diameter. American Journal of Obstetrics, August, 1875.

†On the Comparative Value of the Long Forceps and Turning in Cases of Contracted Pelvic Brim. Edinburg Medical Journal, March, 1867.

of delay as if that was inseparable from the high forceps operation, and as if a good obstetrician, provided with Barnes' dilators and Braun's kolpeurynter, would wait any longer in the one case than in the other, (see my 16th case). The danger of rupturing the uterus is generally admitted to be greater in version than in forceps deliveries.

When portraying the dangers accompanying the application of the long forceps, Dr. Milne proves conclusively that he does not know how they should be applied. He says the application of the forceps increases the dangers before recounted and continues: "For example, the vagina, tumefied by the delay, may be readily torn, or some part of the uterus may be lacerated. Indeed, no one can tell what injury the point of the blade may do as it travels its critical way within the cavity of the womb, any more than we can tell what lies at the bottom of a draw-well, or in a valley in the moon." How can the vagina or uterus be lacerated by the point of the blade if that is preceded by the hand until it has entered the cervix? Should it fail to pass to its proper position by the application of such moderate force as could not possibly produce laceration, the hand should precede and guard the blade of the forceps until it has cleared the obstacle, however high that may be up. It may here be objected that there might be no room for the hand. This objection cannot hold good in the cases under discussion where version is the alternative, since where there is room for version, there must also be room for the hand in the application of the forceps.

Dr. Milne now puts in, what is evidently intended to be an eloquent plea for the child. He pictures the risks and dangers to which the child is first exposed from contractions of the uterus. "Its brain" he says, "will not tolerate the prolonged compression with impunity, even while within the womb." What possible connection the forceps can have with this physiological compression does not appear. He then continues: "The compression to which the head is exposed during the high operation is doubtless severe; and if, as is generally the case, the blades are applied obliquely, then the force is exerted in the antero-posterior axis of the head, which is believed to be the most dangerous direction," and then he goes on to picture the sad results of bringing into the world an infant with permanently injured brain, and "thus entail on a family a source of perpetual sorrow and compassion, and on the State a helpless and hapless member incapable alike of protecting himself or others." The danger to the child from compression, as here described, is another proof of the fact that the author does not use the forceps as they should be used. What he says here may apply if the forceps are used as an instrument of compression. If the instrument is used in the interest of the child, as a means of traction merely, and with proper pauses for relaxation of its pressure to allow the circulation in the child's tissues lying in contact with the blades to be resumed from time to time, not one of these dangers will be encountered.

To what strange use statistics may be put, is illustrated in a paper published by Dr. Harold Williams, of Boston,* in which he furnished statistics, proving to his satisfaction, "That the high forceps operation should be undertaken with the greatest hesitation, inasmuch as its results to the mother are more fatal than Cæsarean section." This is another proof of the utter unreliability of statistics of operations collected at random from the journals, leaving the complications, time of performance and relative skill of the operators out of account. How much the dangers of the forceps operation are here ex-

*Am. Journ. Obst., Jan., 1879.

aggerated, will appear when we consider that the eighteen cases above reported constitute only the worst cases that I have encountered, and that after an hour's faithful tugging at the forceps the risks of craniotomy, and in two of them the dangers of version were added without losing a single mother. In the light of this experience, I am forced to say, at the risk of appearing dogmatic, that if the high forceps operation becomes dangerous to the mother, it is either a rare accident, or it is the fault of the operator. In most cases of this operation ending fatally, this result should be attributed to the long delay and the previous use of ergot. If ergot had not been given, and the forceps had been earlier applied, the mother's parts would not have become so hot, dry and adhesive as I have generally found them, and the probability is that in all those cases where the disproportion was small the delivery might have been effected without the use of the perforator. In a case of shoulder-presentation to which I was called at "the eleventh hour" the stickiness of the maternal and fœtal surfaces was so great that after I had brought down the feet and fastened strong bandages to them, it required my full strength and that of the midwife in attendance to deliver the hips and body of the child, although there was no narrowing of the pelvis.

The other side of the question is strongly advocated by Byford, of Chicago; Matthews Duncan, of London; Depaul, of Paris; Ellwood Wilson, of Philadelphia, and many other high authorities, McClintock, of Dublin, is opposed to version, and in favor of head-first delivery in contracted pelvis.

Fleetwood Churchill* says that in a pelvis of 3.25″ in the conjugate diameter, turning is unnecessary, as a living child may be delivered through it either with or without the forceps. If the conjugate is less than 2.75″ turning is unjustifiable, as a living child cannot be extracted. The limits of the operation then, are when the antero-posterior diameter is between 2.75″ and 3.25″. Barnes† says that in cases where the antero-posterior diameter is less than 3.″ turning is not to be tried.

Leishman‡ says that "when the conjugate diameter is less than *three* inches, to attempt to turn would be to subject the woman to needless risk, while we may be confident that nothing but failure would attend our efforts." He also says, that delivery with the forceps is a safer operation to the mother than turning. Cazeaux states that when version is performed in a pelvis of three, or less than three inches, the result is almost always fatal to the child. Capuron affirms that the fatality to the children delivered by podalic version in contracted pelvis amounts to 70 or 75 per cent. This is endorsed by Cazeaux. Version is fatal to the mother according to Cazeaux in about ten per cent. of the cases, (1 in 10½) while the statistics of Churchill place it at 7 per cent. (1 in 14). Chailly-Honoré says § that "obstetricians up to 1866 are agreed to consider malformation of the pelvis as a motive for the exclusion of version," and also that version should not be made where there is any disproportion between the head of the child and the pelvis of the mother. Spiegelberg,‖ perhaps the highest living German authority on obstetrics, restricts version to those cases where there is an unfavorable position of the head above the brim, preventing its engagement, or to inefficient pains. In these cases it is indicated when it can be performed at the proper time. The cases should likewise be selected.

*Theory and Practice of Midwifery, Ed. of 1866.

†*Med. Times and Gazette*, Sept., 1868.

‡System of Midwifery, Am. Edition, p. 520–1.

§Quoted by Wilson, Am Journal Obstetrics, VIII, p. 679.

‖Quoted on the authority of Dr. J. C. Reeve, Am. journal of Obstetrics, vol. IX, *Review*.

It is only in flat pelves that version should be undertaken; in the uniformly contracted pelvis it is worse than useless. Dr. Angus McDonald* states it as his opinion "that turning does not present any proved advantages to the mother over long forceps in cases of contracted flat pelvis, and is undoubtedly more dangerous to the child. That it is entirely unsuitable when the contraction is general, being much more dangerous to the mother than long forceps *or any of the higher operations*"

The late Professor Hugh L. Hodge, perhaps the greatest master among American obstetricians, in a paper written just before his death, says: "It has been said that success justifies the means; but how a practitioner can be justified, in a protracted case of delivery, where the waters have long been evacuated and the body of the uterus firmly contracted upon the body of the child and placenta, and when a portion, if not the whole, of the presenting part has passed the circle of the os uteri, in attempting version, is inexplicable. *A priori*, it would seem to be impossible. The uterus is firmly contracted to a comparatively small size, there is no room for the return of the presenting part, and every attempt to push up the head and to introduce the hand must be of the most imminent danger to the integrity of the vagina and uterus, and we know that the operation is often impracticable and fatal. No latent hope that the child might possibly be saved under these circumstances can compensate for the immense risk to the mother." †

My eighth case furnishes pretty strong evidence that a living child can not be delivered by version after the forceps have been fairly tried and failed. It was a delivery of twins. The first-born having been delivered with comparative ease after perforation and partial evacuation of the contents of the cranium after failure to deliver by the forceps previous to the perforation, I thought, here, if ever, was the case to test the merits of the question. Finding that after the most persistent efforts on my part, the second child also could not be delivered with the forceps, I proceeded to deliver by version. Although I finally succeeded in delivering the head without perforating, the child perished before I could accomplish its delivery. The mother having refused to take chloroform, suffered much more from the delivery by version than from the previous one by craniotomy. In two other cases, not included in those above reported, I have tried version after the forceps had failed. In the first of these, the delivery could not be accomplished without perforating, which was done by another operator. The mother died some hours after the delivery. In the second case, multipara, disproportion in size of head to pelvic canal, the mother being an educated German midwife, requested a trial of version after the delivery by the forceps had been despaired of. I succeeded in delivering the head without perforating, but not with sufficient rapidity to save the child.

If our aim was simply to avoid craniotomy, version would often enable us to do that as was shown in these two cases, but the dangers to the mother and child after version are greater in consequence of the urgency for immediate delivery after it. The practitioner feels that every moment's delay adds to the danger of the child. Rupture of the cervix or perineum of the mother, and fracture of the arms, clavicles or neck of the child are liable to result from it.

Having failed to deliver by the forceps or version, and having consequently abandoned all hope of saving

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*On the Comparative Advantages of Forceps, of Turning and Premature Labor in Contracted Pelvis.—*Obstet. Journal of Great Britain and Ireland*, Nov., 1873.

†On Compression of the Fœtal Head by the Forceps and Cephalotribe. *Am. Journal of Obstetrics*, May, 1875.

the child, except under such serious risks to the mother as would not be justifiable; it becomes a duty to choose of the remaining operations the one that promises the greatest safety to the mother, and that will, in my opinion, necessarily be craniotomy. In a slightly contracted pelvis, this operation when performed by an experienced operator, possessing ordinary dexterity may well be said to be almost free from danger to the mother. My eighteen cases, all delivered by craniotomy after a persistent trial of the forceps, and all ending in the recovery of the mother, will, I think, justify this opinion. Most of the fatal cases reported are, I think, due to exhaustion in consequence of delaying the operation too long.

Taking such strong grounds in favor of the comparative harmlessness of craniotomy as I have done in this paper, it may be necessary to account for the injuries some of the mothers sustained. In the second case, in which a vesico-vaginal fistula resulted, craniotomy could not possibly have contributed to the result, as the fistula was due to the sloughing, which would have been prevented, had the operation been resorted to earlier. In the third case, a transverse rupture of the posterior portion of the roof of the vagina was probably produced by too forcible contraction of the uterus, possibly due to the action of the ergot which had been administered long before even the forceps had been applied. The attack of parametritis occurring in the sixteenth case is too common a complication of parturition to hold craniotomy responsible for it.

Wiener gives *statistics of the craniotomies in the clinic and policlinic at Breslau for the twelve years from 1865–77. There were during this time 101 craniotomies. The mortality of the mothers in these operations was twenty-five per cent. Thirty-nine of the operations took place in the clinic (lying-in hospital) with nine deaths, and sixty-two in the policlinic (out-patient department) with seventeen deaths. In the six years from 1872 to 1877, there were 17 craniotomies in the clinic, with no deaths. During the same time there were in the policlinic 24 operations with 7 deaths. The larger mortality in the out-patient department is ascribed to the late stages of labor in which the operation is done, the patient being frequently entirely exhausted before the consulting accoucheur is sent for. Spiegelberg states that after failure with the forceps, no more time is to be spent in temporising. The time to operate having arrived it is to be proceeded with at once. Dr. E Copeman in a report on cases of obstetrics in private practice,* reports one death in 14 mothers delivered by craniotomy. By way of comparison it may be stated that the same writer reports five deaths in 22 mothers delivered by version.

Laparo-elytrotomy has recently been prominently mentioned as a substitute for craniotomy, but Professor T. G. Thomas, who re-introduced the operation in 1870, being the second that ever performed it on the living subject, has expressed the opinion that "in uncomplicated cases of craniotomy the operation of laparo-elytrotomy would not be justifiable. Only in cases where the former operation would be especially dangerous to the mother would he give a decision in favor of laparo-elytrotomy."† This operation holding out the hope of saving both mother and child should be resorted to whenever the diameter of the pelvis is so much contracted as to render craniotomy impracticable, that is, when the smallest diameter is below two inches. Of the eight cases hitherto reported, four women and six children have been saved. In exactly

Archiv fuer Gynækologie, bd. XI.

Obst. Journal Great Britain and Ireland, June 1874.

† Trans. N. Y. Obstet'l Society; *Am. Journal Obstetrics*, April, 1880.

one-half the cases, the bladder has been cut into or torn during the operation. It is probable however that with additional care this accident could in most cases be avoided.

From these considerations it is evident that the indications for gastro-hysterectomy (Porro's modification of the Cæsarean section) would dwindle down to cases of rupture of the uterus with escape of the child into the abdominal cavity, and cases of extensive carcinoma of the cervix This operation, meeting all the indications for, and being less dangerous than gastro-hysterotomy, promises to supplant the latter operation entirely.

The artificial induction of premature labor has been strongly urged of late, especially in Germany, as a proper and justifiable operation in contracted pelvis. The foremost advocate and defender of this practice at present is Dohrn of Marburg.* He publishes an analysis of 42 cases with the following results: Of the 42 cases, 11 were primaparæ, and 31 multiparæ. Three of the mothers died. Of the children, 19 died during or shortly after birth, 23 remained alive.

Nineteen multiparæ, observed by Dohrn, in a succession of labors, were delivered at full term of 41 children, of which number 37 died during or shortly after birth, and only 4 lived. These same women were delivered by the induction of premature labor of 25 children, of which 15 lived. In these cases the percentage of children saved is 60 per cent. in prematurely induced labor, and 9.7 per cent. in previous labors at full term. This would indicate a decided conservative influence of this operation.

On the other hand, Spiegelberg,† Litzman,‡ MacDonald§ and Landau‖ argue against the advisability of the operation. Spiegelberg seems to have somewhat modified his opposition however for the following statistics are reported by Wiener,* his assistant at the Breslau obstetrical clinic. Sixteen cases of premature labor artificially induced in consequence of contracted pelvis, gave the following results:

The mortality to the mothers was 5.25 per cent., (one death in 16 cases, from "lymphatic septicæmia"). 62½ per cent. of the children died either during, or shortly after birth. Wiener concludes, that within certain limist of pelvic narrowing (2.8″ – 3.7″) the artificial induction of premature labor is more favorable to the mother than labor at full term In a less degree the operation is also more favorable to the life of the child. Wiener, however, points out that many children delivered prematurely, die soon after birth, and that consequently the operation is not so favorable to the offspring as claimed by Dohrn.

The conclusions that I have been able to draw from my experience and research in reference to the different methods of delivery in narrow pelves, are the following:

1. The propriety of induction of premature labor is still questionable.

2. That version, while it should never be the alternative of the forceps, should be tried in contracted flat pelvis before resorting to craniotomy, but is worse than useless in a uniformly contracted pelvis after the forceps have failed.

3. The forceps, when properly applied and used, are the safest means of delivery for both mother and child. After failure with them craniotomy is indicated, except in cases of narrow flat pelvis, where version should first be attempted.

4. When there is not room enough for the application of the forceps, and when the smallest diameter of the pel-

*Volkmann's Sammlung Klin. Vortraege, 1875, und Archiv fuer Gynækologie, bd 12.

†*Archiv fuer Gynækologie*, Bd. I.

‡Ibid. Bd. II.

§*Obstetrical Journal Great Britain and Ireland*, Nov. 1873.

‖*Archiv fuer Gynækologie*, Bd. XI.

*Archiv fuer Gynækologie, Bd. XII.

vis is less than two inches, laparo-elytrotomy is indicated. Our methods of measuring the diameters of the pelvis and of estimating the size of the child's head in utero are, however, so very inexact that it is amusing to see cases reported with diameters given down to one-twelfth of an inch. Considering that these estimates are at best rough guesses, it will generally be well to give the child the benefit of the doubt and attempt to apply the forceps whenever the smallest diameter of the pelvis seems to be somewhere above two inches.

5. In cases of rupture of the uterus where the child has escaped into the abdominal cavity, and in cases of extensive carcinoma of the cervix, Porro's operation (gastro-hysterectomy) should be performed in the interest of the child.

6. The unmodified Cæsarean section (gastro-hysterotomy), has been superseded by Porro's operation, which meets all the indications, with less danger to the mother.